Big Data on Decision Making in Energetic Management of Copper Mining

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Abstract: It is proposed an analysis of the related variables with the energetic consumption in the process of concentrate of copper; specifically ball mills and SAG. The methodology considers the analysis of great volumes of data, which allows to identify the variables of interest (tonnage, temperature and power) to reach to an improvement plan in the energetic efficiency. The correct processing of the great volumen of data, previous imputation to the null data, not informed and out of range, coming from the milling process of copper, a decision support systems integrated, it allows to obtain clear and on line information for the decision making. As results it is establish that exist correlation between the energetic consumption of the Ball and SAG Mills, regarding the East, West temperature and winding. Nevertheless, it is not observed correlation between the energetic consumption of the Ball Mills and the SAG Mills, regarding to the tonnages of feed of SAG Mill. In consequence, From the experimental design, a similarity of behavior between two groups of different mills was determined in lines process. In addition, it was determined that there is a difference in energy consumption between the mills of the same group. This approach modifies the method presented in [1].

Keywords: Copper mining, energetic efficiency, big data, process management.

1 Introduction

Market conditions, global competence and care of environment have created the urgent need to improve the energetic efficiency. So, efficient management of energetic resources for big industrial customers shaping up a critical aspect. It is important for industries to economize in the